



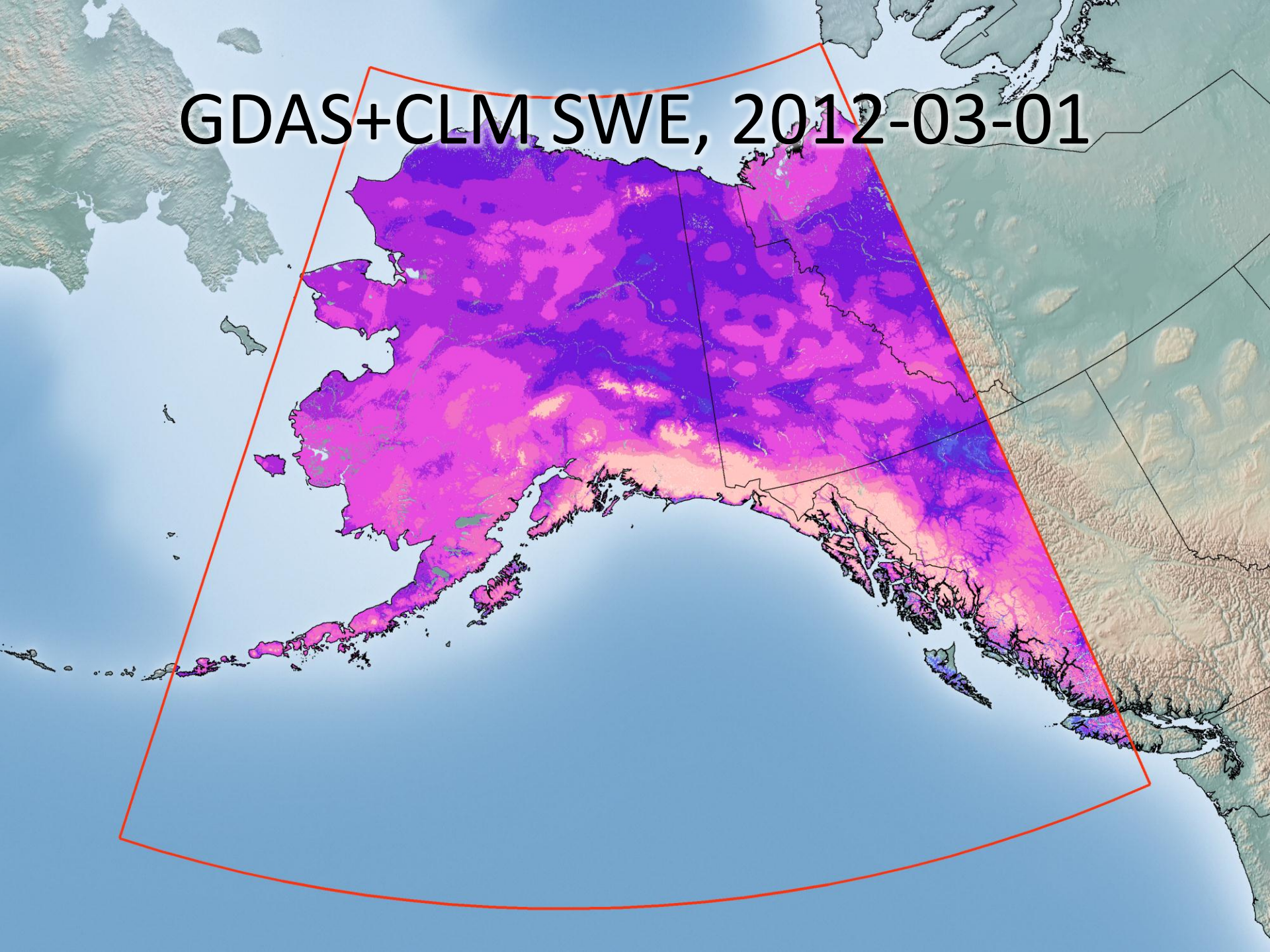
Present and Future Operational Modeling with the GSFC Land Information System at NOHRSC/NWC

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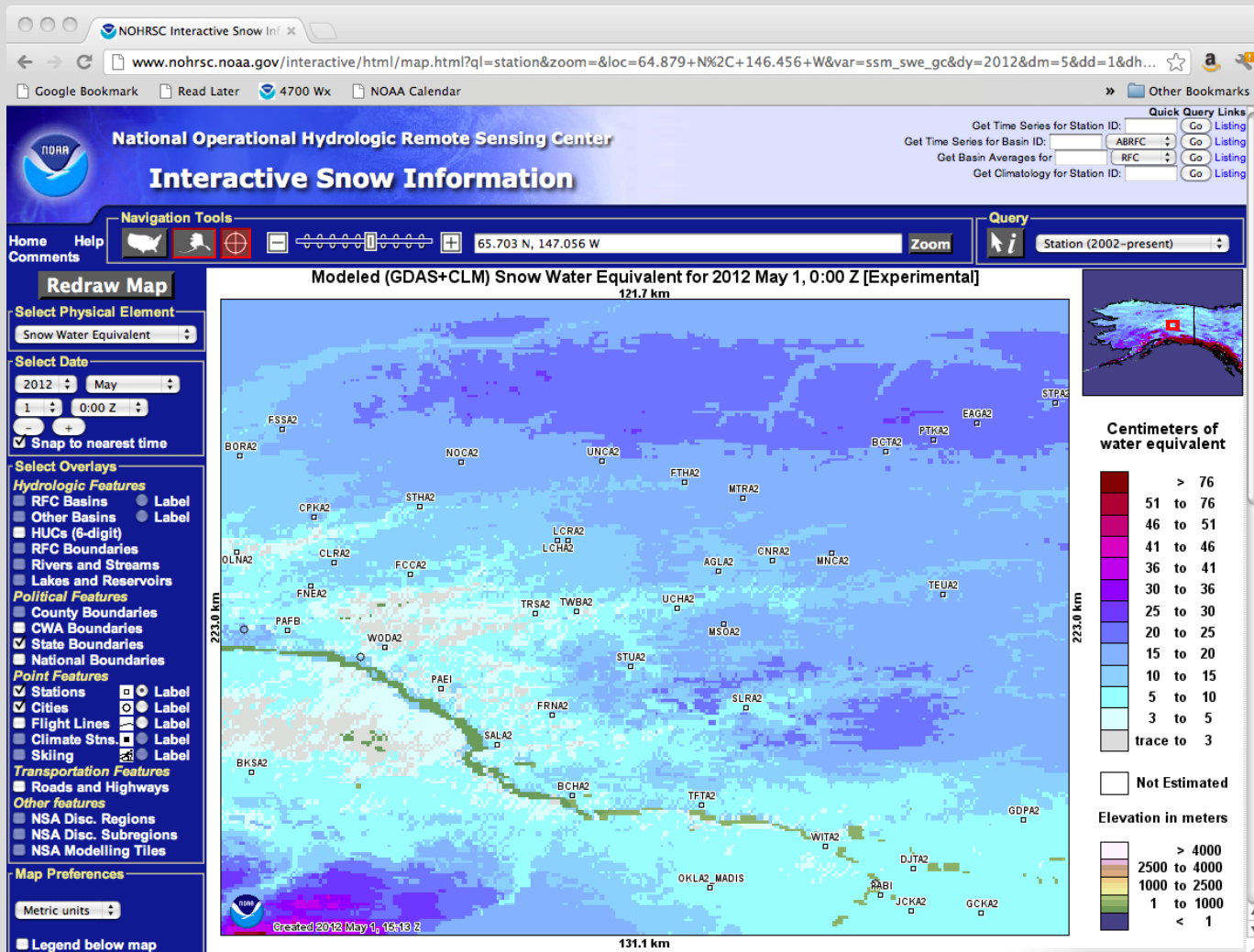
LIS at NOHRSC: Alaska

- 2008: Explored operational LIS for AK
 - Domain: $42^{\circ} \times 24^{\circ}$ at 0.01° ; 10.1×10^6 grid cells (4.6×10^6 unmasked)
 - LSMs: CLM 2.0, Noah (2.7.1, now 3.2)
 - 9-year spin-up
 - LSMs driven by GDAS initially, now by both NAM and bias-adjusted GDAS; i.e. a 4-member “ensemble”.
 - Primary collaboration with APRFC during spring snow melt.
 - Monthly snow surveys offer data assimilation potential.

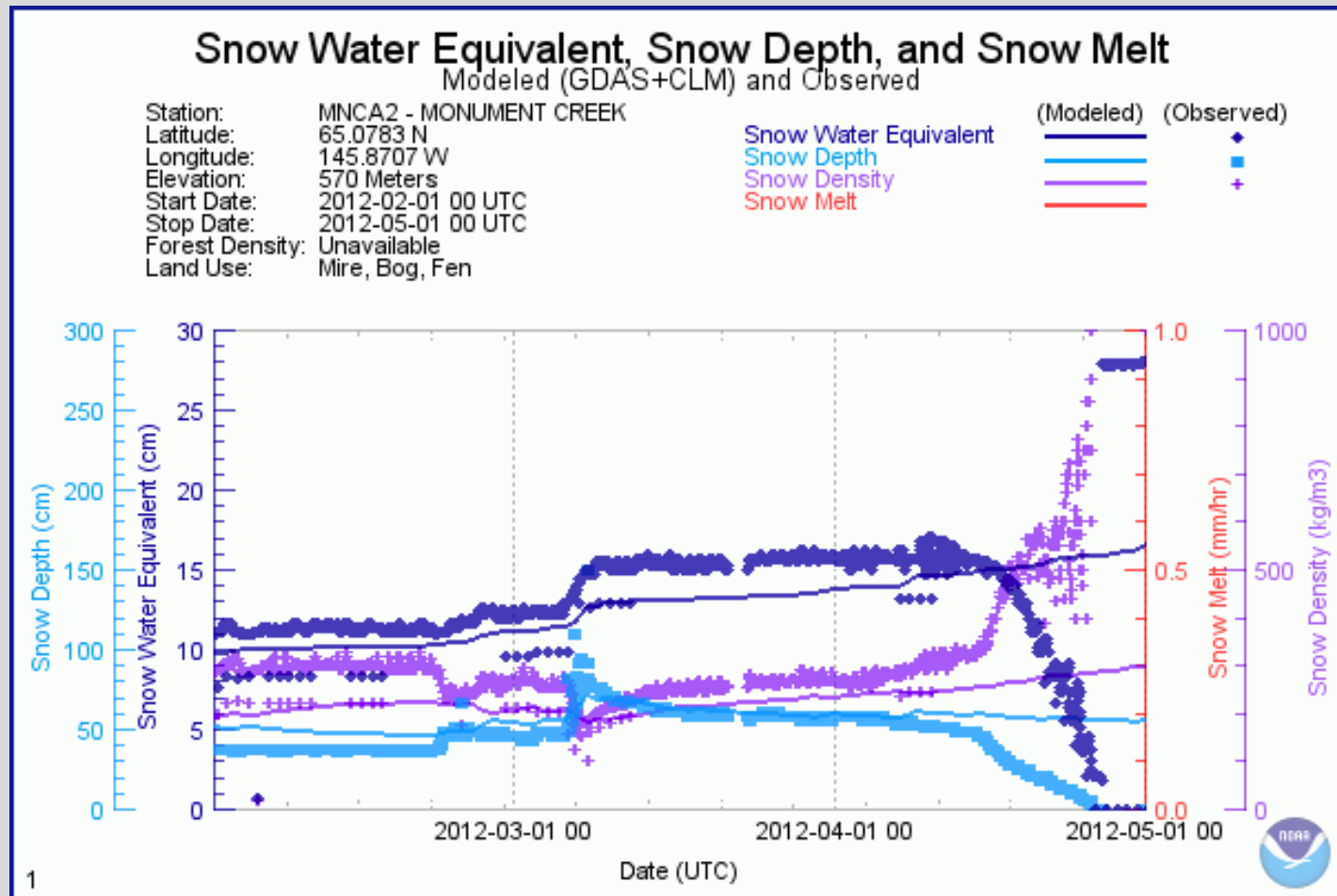
GDAS+CLM SWE, 2012-03-01



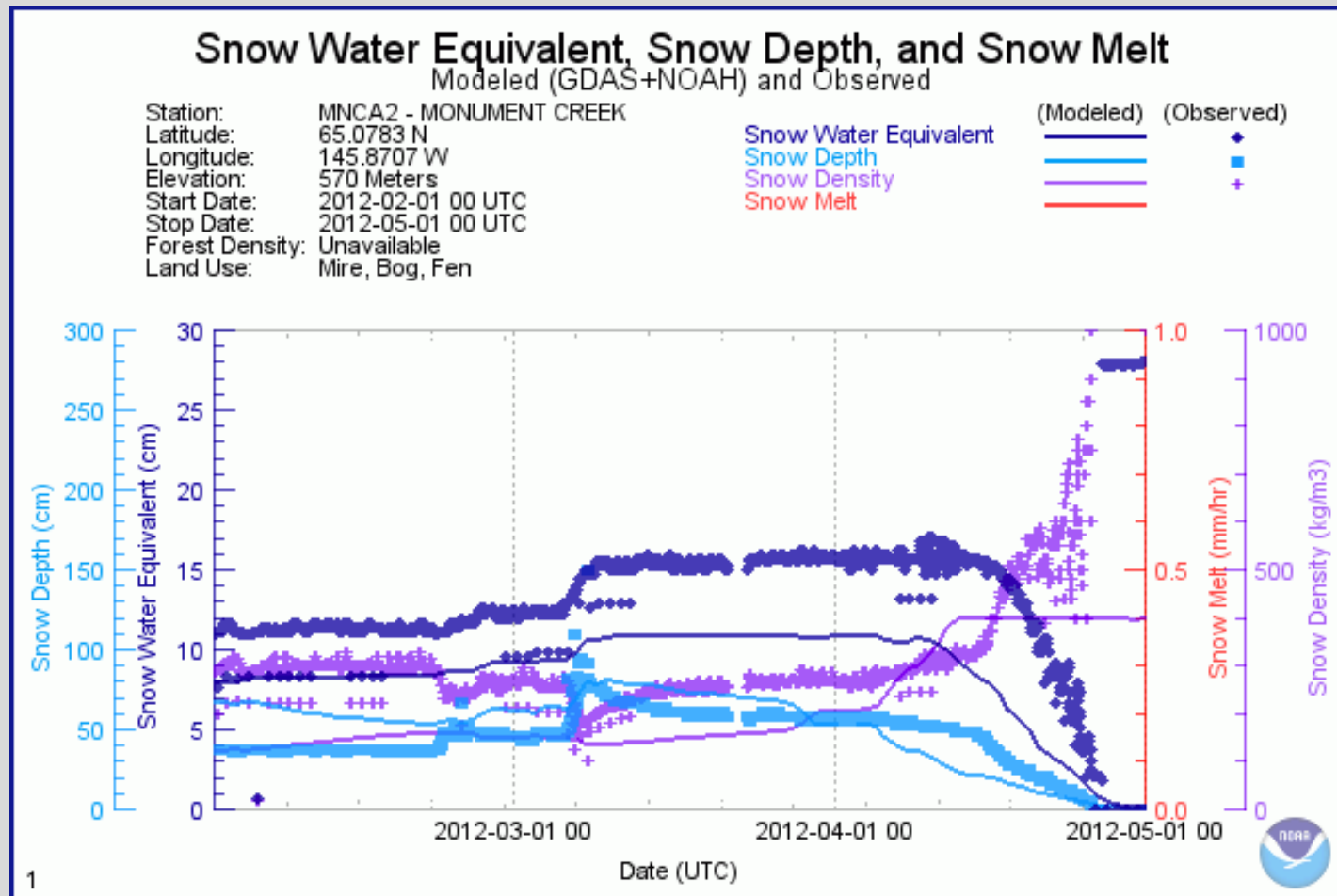
LIS at NOHRSC: Alaska



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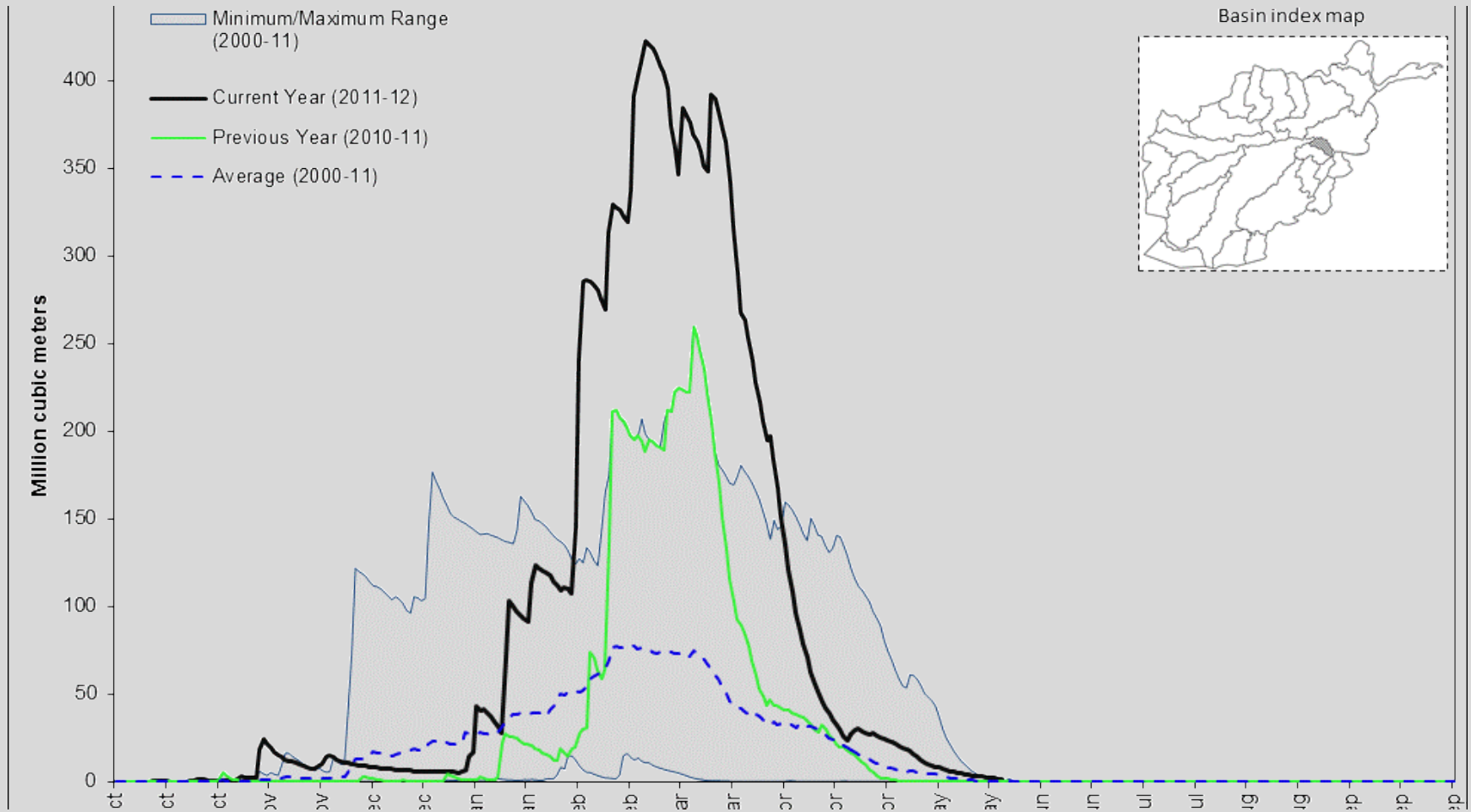
LIS at NOHRSC: Alaska



LIS at NOHRSC: Central Asia

- 2009: USGS collaboration for FEWS NET
 - Domain: $70^{\circ} \times 35^{\circ}$ at 0.01° ; 24.5×10^6 grid cells (22.1×10^6 unmasked)
 - LSMs: CLM, Noah
 - Driven by GDAS only
 - Few quantitative surface snow observations; model states are evaluated via anomaly analysis based on eleven years of retrospective runs.

LIS at NOHRSC: Central Asia



<http://earlywarning.usgs.gov/fews/sca/afghanistan/web/imgbrowsc2.php?extent=agso>

LIS at NOHRSC/NWC: North America

- October 2013: National Water Center Initial Operating Capacity (“IOC13”)
- Domain: $116^{\circ} \times 55^{\circ}$ at 0.008333° ; 91.9×10^6 grid cells (37.5×10^6 unmasked)

LIS at NOHRSC/NWC: North America

- October 2013: National Water Center Initial Operating Capacity (“IOC13”)
- Domain: $116^{\circ} \times 55^{\circ}$ at 0.008333° ; 91.9×10^6 grid cells (37.5×10^6 unmasked)
- LSMs: CLM, Noah
- Driven by Rapid Refresh and NAM
- Daily forecasts to 72 hours
- Hourly history files

LIS at NOHRSC/NWC: North America

- October 2014: “IOC14”
- Possible capabilities beyond IOC13:
 - Improved, “AoR” forcings
 - 30-year reanalysis
 - Update model cycles
 - Snow data assimilation capabilities
 - Additional land surface models
 - Hydrologic routing